17MDSI Series
Stepper Motor/Driver/Controller

User's Guide
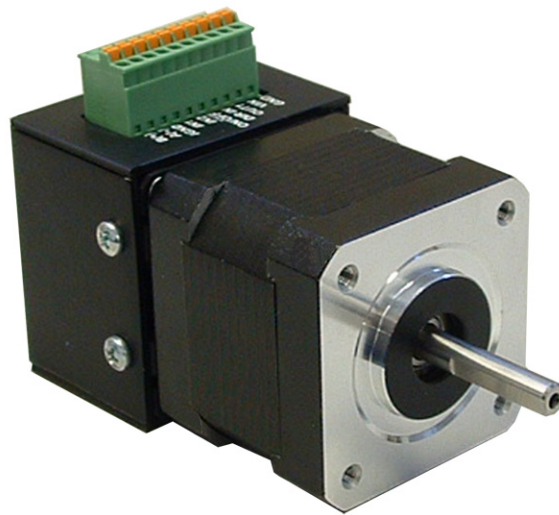
17MDSI Features

- Stepper Motor/Microstep Driver/Controller
- Eliminates Motor Wires
- Microstep Divisors of 8, 4, 2, or Full Step
- Compact Package
- 12-24V Power Requirement
- RS485 Communications
- TTL Logic or 24V Level Inputs Available
- Ideal for Precise Positioning
- 0.225° Resolution at Eighth Step
- Efficient and Durable
- Long Life Expectancy

General Description

The 17MDSI Series has a compact construction that integrates a simple indexer/controller, microstepping driver and a stepper motor in one stream line package. With the three parts combined into one casing, the need to include motor wires has been eliminated. The high-torque step motor can generate up to 62 oz-in of torque. The microstepping driver will operate from voltages of 12VDC minimum to 35VDC maximum. The inputs are capable of running from either open collector, TTL level logic outputs or 24VDC outputs form PLCs and are all active low. The microstepping driver features resolutions from 200-1600 steps/revolution, providing smooth rotary operation. The 17MDSI Series comes in a single shaft version with motor stack lengths of 1, 2, or 3 allowing for varying amounts of start-up torque, dynamic torque and inertia. The 17MDSI Series features built in over temperature and short circuit shut down protection. It also has automatic 50% reduction in stepper motor current after indexing is complete and status LED's to indicate power on (green LED) and motor running (yellow LED).

Ordering Information - Use the chart to create your specific part Number			
Mode Series	Motor Length	Shaft Options	Special Options
17MDSI	102	S	-01
	102, 202, 302		
		S - Single-Shaft	
			Blank for Standard Product Other Options will be created as needed.

Input Pin Descriptions	
Pin #	Description
1	RS485 B(+)
2	RS485 A(-)
3	RS485 Gnd
4	Input 1
5	Input 2
6	On/Off
7	Direction In
8	Output 1
9	VIN (12-35VDC)
10	GND (0VDC)

Control Inputs (Pin 4, 5, 6, 7):

Input 1, 2:   Logic "1" (Open) = Not Active
                   Logic "0" (0VDC) = Active
Direction: Logic "1" (Open) = CW
                   Logic "0" (0VDC) = CCW
On/Off: Logic "1" (Open) = On
                   Logic "0" (0VDC) = Off

Note:
Open Inputs are inactive and internally pulled up to +5VDC for all 17MDSI models

Control Outputs (Pin 8):

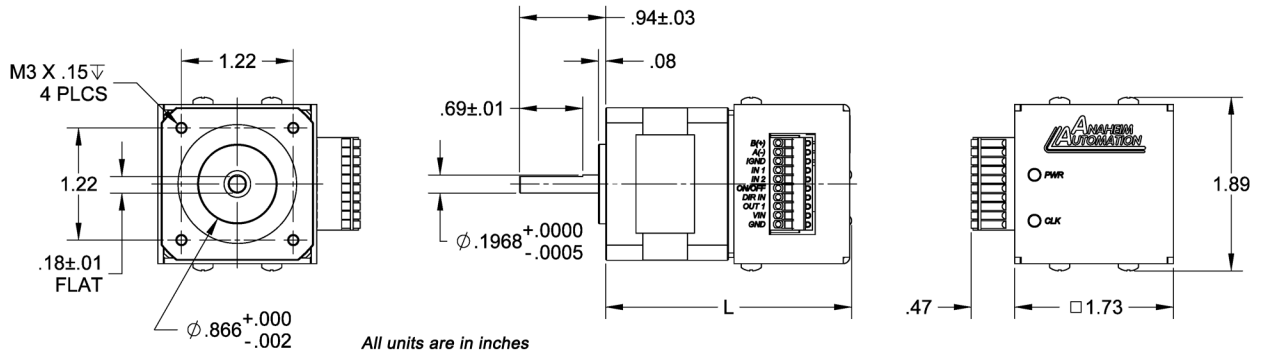Output 1: Open Drain Type Output, Vce (max) = 40VDC, Ic (max) = 50mA
     This output will conduct current when active, and be open when not active. Current needs to be
     limited into this pin. For the 17MDSI Series, this output is a complete output.

Power Input (Pin 9,10):

VIN: Input voltage 12VDC minimum, 35VDC Maximum
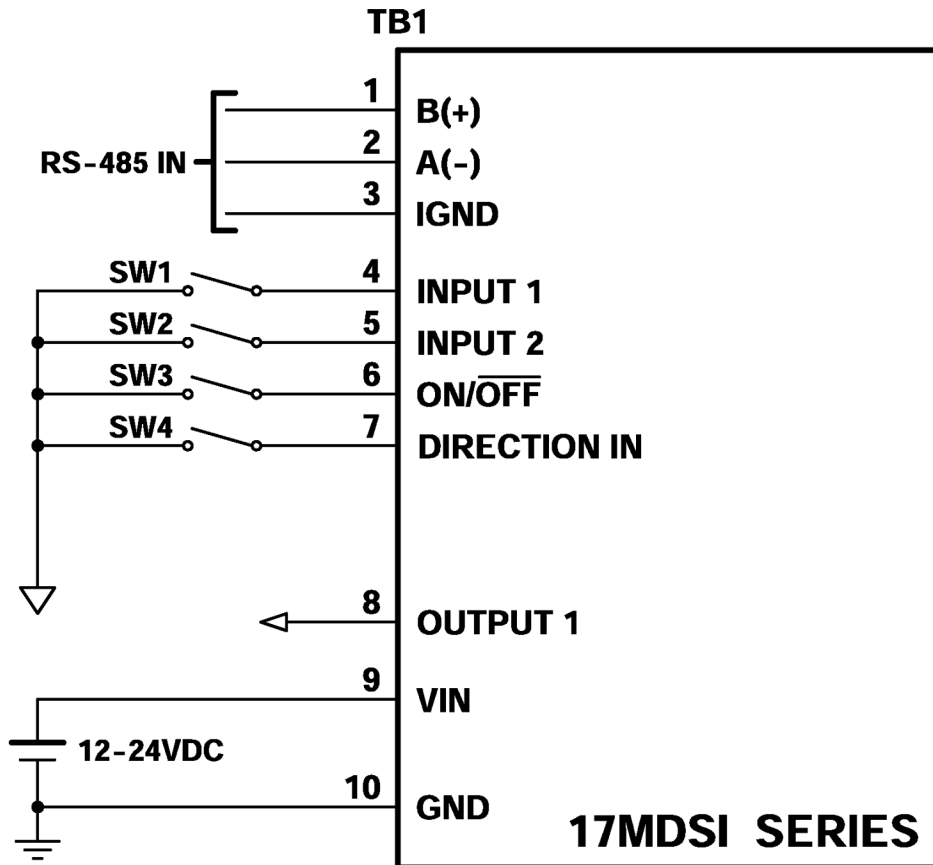GND: Input voltage return or common

Accessories Ordering Information	
Part Number	Description
PSAM24V2.7A	24V @ 2.7A Universal Input Power Supply
PSAM24V1.2A-5V3.5A	24V @1.2A and 5V @ 3.5A Universal Input Power Supply
485SD9TB	Port Powered RS232-RS485 Converter
AA9MFC-6	6 Foot Male to Female Serial Cable

Dimensions

M3 X .15 ▽
4 PLCS

1.22

1.22

.18±.01
FLAT

ϕ.866 $^{+.000}_{-.002}$

.94±.03

.08

.69±.01

ϕ.1968 $^{+.0000}_{-.0005}$

L

B(+)
A(-)
IGND
IN 1
IN 2
ON/OFF
DIR IN
OUT 1
VIN
GND

1.89

.47

□1.73

PWR

CLK

All units are in inches

Model	Length
17MDSI102S	2.719"
17MDSI202S	2.956"
17MDSI302S	3.271"

Wiring Diagrams

TB1

RS-485 IN

1	B(+)
2	A(-)
3	IGND

SW1 — 4 INPUT 1
SW2 — 5 INPUT 2
SW3 — 6 ON/OFF
SW4 — 7 DIRECTION IN

8 OUTPUT 1

9 VIN

12-24VDC

10 GND

17MDSI SERIES

Inputs and Outputs

Inputs: All inputs are pulled up to 5VDC. A logic "0" activates inputs that are pulled up. An unconnected input will always remain inactive.

Direction: When this input is not active, the motor will be moving in the clockwise or "+" direction. When this input is active, the motor will move in the counterclockwise or "-" direction. This input is not read when a software index command is given. To change direction while using the software, change the direction option there. When two motors are used, the second motor will move in the opposite direction by default.

On/Off: When this input is not active, the motor will enabled or energized. When this input is active, the motor will be disabled or de-energized.

Input 1, 2: These inputs are used to select one of the two profiles. When one of the profiles is activated, the unit will change the speeds, acceleration, index number and complete time based on the pre-programmed values or that profile and begin the index. Activate only one of these inputs at once.

Output 1 (Complete Output): This is an open collector output that is capable of sinking 50mA. It is current sinking when the indexer finishes its index cycle for the pre-programmed amount of time.

Microstep Modes

The microstepping modes are set by using the software when the profiles are being setup. The ranges of microstepping are 200, 400, 800, and 1600 steps per revolution in a 200 step/revolution step motor. To set the divisor just select the divisor wanted (1, 2, 4, or 8).

Reducing Output Current

Reducing the output current is accomplished automatically. The amount of current per phase in the reduction mode is approximately 50% of the set motor current. When the current reduction circuit is activated, this lowers the per phase output current. This is done when the indexer is not running.

LEDs

When powered and operated properly the power LED will be green. When the indexer is running the yellow LED will be on. Refer to the dimension drawing for location of the LEDs.

Baud Rates

The 17MDSI Series only accepts a baud rate of 38400. A baud rate is a term used frequently in serial data communicates. A "baud" is defined as the reciprocal of the shortest pulse duration in a data word signal, including start, stop, and parity bits. This is often taken to mean the same as "bits per second", a term that expresses only the number of "data" bits per second. Very often, The parity bit is included as an information or data bit.

RS485 Protocol

The 17MDSI Series uses a RS485 protocol for communication. The RS485 protocol mode is as follows; On board receivers will remain in active mode indefinitely. Transmitters must be turned off when the units is not sending data its driver will be turned on and each of the units connected will have their drivers off. If they are requested to send data back to the PC, the selected unit will turn it's driver on to send the data and then turn it off after it has completed transmission. Note: The above protocol is done internally between the converter and the 17MDSI Series. The RS485 method of communication allows increased noise immunity and increased communication distance of up to 4,000 feet without repeaters. RS485 repeaters allow an additional 4000 feet per repeater. The 17MDSI Series is designed for two wire configuration. The 2 wire configuration makes use of the tristate capabilities of RS485 to allow a single pair of wires to share transmit and receive signals for half duplex communications. This "two wire" configuration (note that an additional ground conductor must be used) reduces cabling cost.

RS232 to RS485 for multiple units or cables longer than 50ft

The 17MDSI Series can be connected to your PC serial port via a RS485 converter (*model number:* 485SD9TB *sold separately).* This converter will convert the RS232 voltage signals to compatible RS485 differential signals. Only one converter box is needed per serial port. Contact the factory or use the website www.anaheimautomation.com for RS485 converter information and sales.
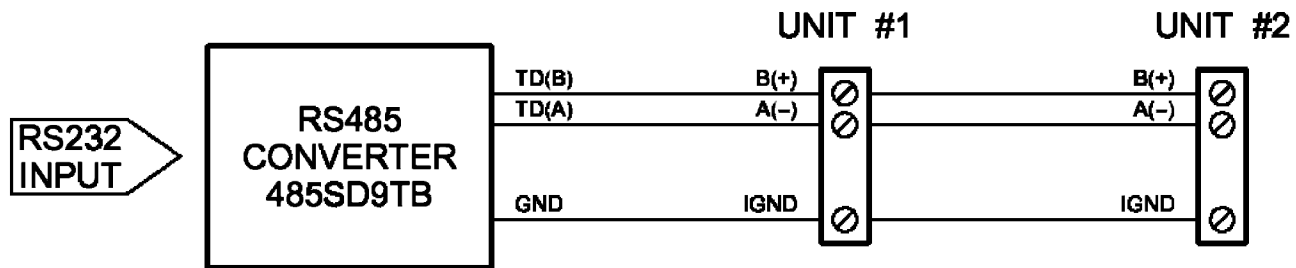
Terminating Resistor

To eliminate noise on the transmission lines or when using a 4000 ft. cable, a terminate resistor is suggested. If used, the termination resistor need only be added to the last (furthest from the RS485 converter box) 17MDSI Series motor/driver/ controller on the network between pins A(-) and B(+) on the terminal block. The value of this resistor should be 120 ohms.

Axis Selection

Each 17MDSI Series motor/driver/controller is addressed using a programmable register allowing the PC to address up to 99 units from one serial port. The Default axis is "0". To change the axis, use the SMPG-SMSI software or the "~" command. To verify or check the axis, use the software or the "%" command. The axis designation is nonvolatile and will remain the same until changed by the user.

Motion Profiles and Running the Indexer

The programmable simple indexer has the ability to store two different motion profiles. The profiles include a base speed (starting speed), a maximum speeds (running speed), acceleration/deceleration, and a number of steps (index) number. The base speed has a range of 1-5,000Hz, the maximum speed has a range of 1 Hz-50kHz, the acceleration/deceleration has a range of 100 to 9,999,999 steps/sec^2 and the index has a range of 0-8,388,607 steps.

There are "two ways" to get the unit to index: Examples are shown on the next page.

1. The first way is to directly control it from the computer with the software provided. Once the motion profiles have been set, the unit is ready to index. From the software, the user can select which profile to run and then click the begin index button. If a soft limit command is sent or a soft limit input is activated, then the unit will immediately ramp down to base speed and continue running until the index has completed. To stop all motion before the index has completed, a hard limit command needs to be sent or a hard limit input must be activated.
2. The second way to make the unit run is to activate the individual index input. When an index input is activated, it selects from memory the speed profile that was selected. If a soft limit input is activated, then the unit will immediately ramp down to base speed and continue running until the index has completed. To stop all motion before the index has completed a hard limit input must be activated.

Normal Operation

A. A Profile input is activated; Ramps up to max speed.
B. No limit is active; Max speed is reached (keeps running at max speed).
C. No limit is active; Internal counter signals to ramp down to base speed.
D. Internal Counter is complete; Base speed is reached. Pulse stop. Complete Output is set.
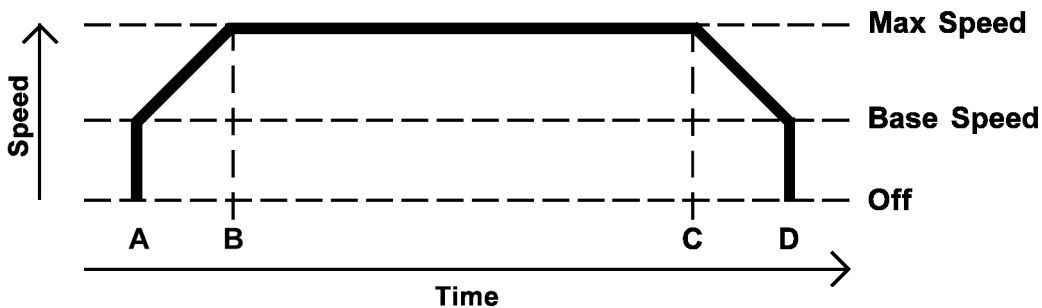
Hard Limit Activated During Index

A. A Profile input is activated; Ramps up to max speed.
B. No limit is active; Max speed is reached (keeps running at max speed).
C. Hard limit is activated; Pulses stop. Complete Output is set.
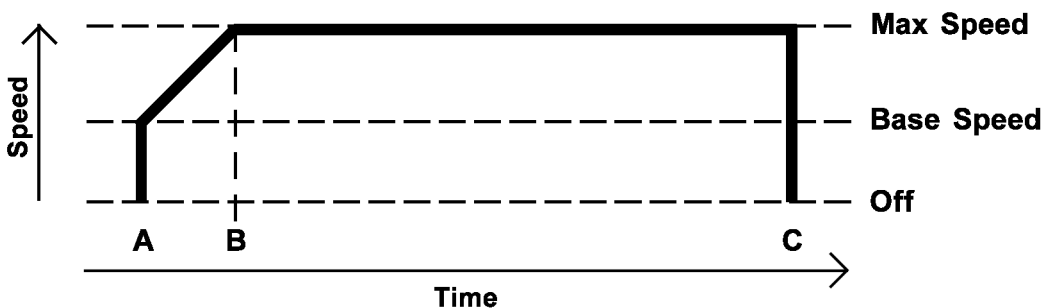
Functions

Profile Inputs: These inputs are used to select and begin the specified motion profile. Only 1 input should be activated at a time.

Motion Profiles: The indexer will accept up to two different speed or motion profiles. Each profile has it own programmable Accel/Decel, Base speed, Max speed, Index distance value and Complete time. These values are stored in EEProm for stand-alone use and must be programmed before the indexer is ran.

Acceleration/Deceleration: The acceleration and deceleration are by default the same value. This function controls the time that the motor will take to move from base speed to max speed. The higher the value, the faster the motor will accelerate. The same principal applies for the deceleration which is controlling the time it takes to go from maximum speed to base speed. The higher the value, the faster the pulses will decelerate. The different accel/decel profiles are stored in EEprom for stand-alone use. (Range:100 to 9,999,999)

Base Speed: The base speed is the speed at which motion starts and stops. It is entered directly as the number of steps per second. This speed must always be less than the max speed. The different base profiles are stored in EEprom for stand-alone use. (Range:1 to 5000)

Max Speed: The max speed is the top speed the user wants the pulses to run at. This speed must always be equal or greater than the base speed. It is entered directly as the number of steps/second. The different max profiles are stored in EEprom for stand-alone use. (Range:1 to 50,000)

Index Number: The index number is the number of steps that the motor will take when the motion profile starts. It is entered directly as the number of steps to take. The different index profiles are stored in EEprom for stand-alone use. (Range: 0 to 8,388,607)

Direction Input: If this input is open then the unit will be running in the clockwise direction. if this input is active then the unit will be running in the counterclockwise direction. This pin can be overridden by the programmable software direction. It will activate the direction output when the pin is changed. This means, that if you start the profile from the software, the unit will look at the software direction. If you start the indexer from the inputs, then the unit will look at the direction input.

Complete Output: This is an open collector output that is capable of sinking 50mA. It is current sinking when the indexer finishes its index cycle for the pre-programmed amount of time. The time is entered as microseconds. (Range: 1 to 1000)

SMPG-SMSI Software

The SMPG-SMSI software is a handy utility that supports Anaheim Automation's programmable pulse generators and simple indexers. Connecting your PC to the 17MDSI Series stepper motor/driver/controller, via RS485, the software can easily perform the following tasks:

- Exercise and monitor the 17MDSI Series stepper motor/driver/controller
- Directly communicate with the 17MDSI Series stepper motor/driver/controller

Installation

Software
- The SMPG-SMSI software is supplied on a CD, containing the setup program and the software.
- SMPG-SMSI software is compatible with all versions of Windows including Windows 2000, Windows XP, Vista, and Windows 7.

Windows 3.x Installation
1. Insert the CD into the drive
2. From the Program Manager select **File │ Run**
3. Enter **D:\setup** and click **OK** - use the appropriate drive letter (i.e. **D** or **E**)

Windows 95/98/NT/ME/2000/XP Installation
Option 1
1. Insert the CD into the drive
2. From the Program Manager select **Start │ Run**
3. Enter **D:\setup** and click **OK** - use the appropriate drive letter (i.e. **D** or **E**)

Option 2
1. Open Windows Explorer
2. Open CD Drive Folder (D: or E:)
3. Double Click the setup Icon

Getting Started

1. Double click on the SMPG-SMSI icon to run the software.
2. Apply power to the 17MDSI unit.
3. Set the appropriate communication setting by selecting Setup │ Communication Setting from the menu bar.
4. Establish communications with the 17MDSI by clicking on the Connect Icon, or select Setup│Connect. If the unit is connected properly, the program will notify you when communication has been established and the correct programming tab will be enabled to let you work with the unit.

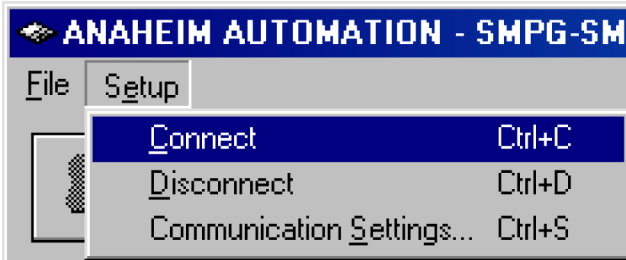## "The Unit is Connected" / "The Unit is NOT Connected"

On the right of the Toolbar, the user will find the communication status of the pulse generator. If communications is not established, please refer to the troubleshooting section.

File Menu

Setup Menu

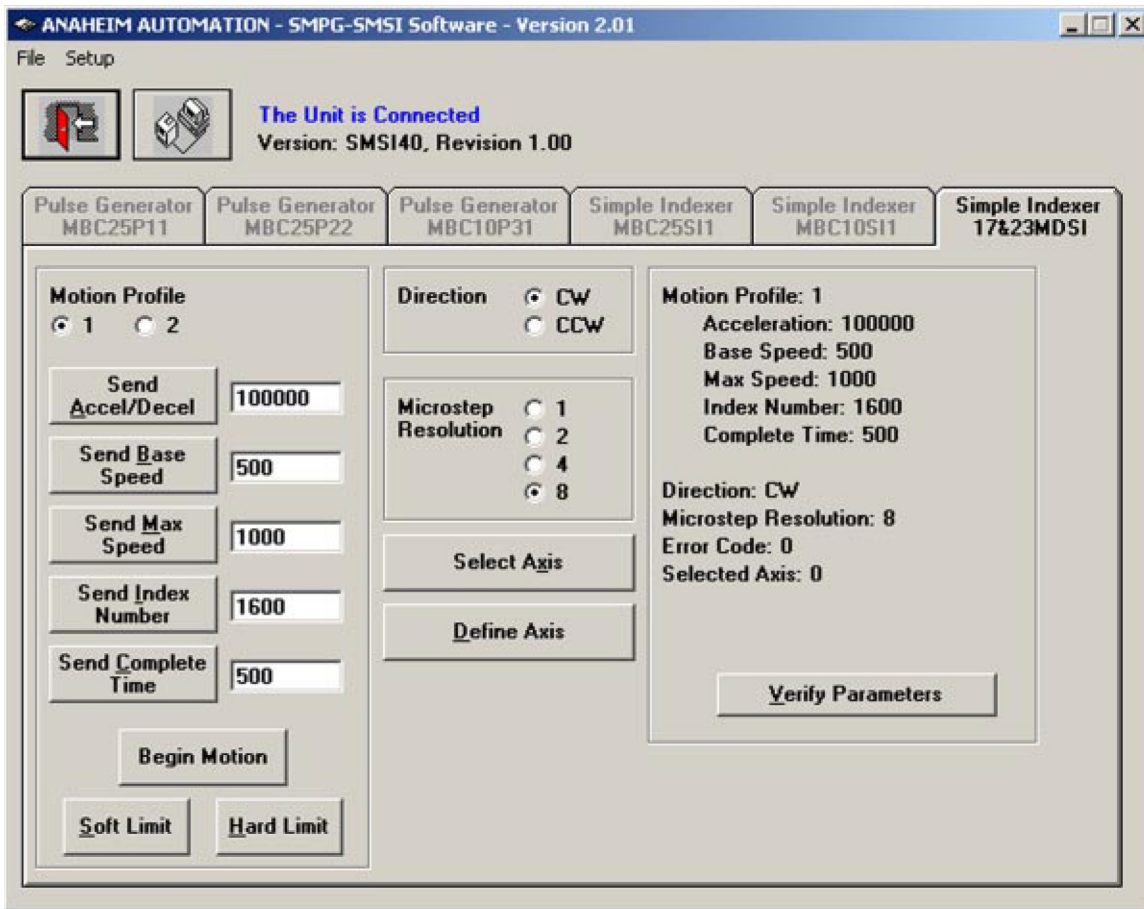| Exit	Exit the SMPG10WIN Software
Connect	Establish communications with the controller.
Disconnect	Discontinue communications and release the comport for use by other devices.
Communication Settings...	COM port Selection (Ports 1, 2, 3, 4, 5, 6, 7, 8, 9 or 10)

Toolbar

Exit	Exit the SMPG-SMSI Software
Connect	Establish communications with the controller.

Program Window

Motion Profile	Select motion profiles 1 or 2.
Send Accel/Decel	Send the acceleration & deceleration parameter to the indexer. (steps/sec^2)
Send Base Spend	Send the base speed parameter to the indexer. (steps/sec)
Send Max Speed	Send the maximum speed parameter to the indexer. (steps/sec)
Send Index Number	Send the index number parameter to the indexer. (steps)
Send Complete Time	Send the complete time parameter to the indexer. (useconds)
Begin Index	Motor will ramp up to maximum speed and keep moving until a limit command is received or the index is complete.
Soft Limit	Motor will ramp down to base speed and continue running until the index is complete.
Hard Limit	Stop any motor motion.
Direction	Set direction to clockwise or counter-clockwise.
Microstep Resolution	Set microstep resolution to divide by 1, 2, 4, or 8.
Select Axis	Set the axis in the software for the 17MDSI unit to communicate with.
Define Axis	Sets the axis in the 17MDSI.
Verify Parameters	Updates and displays controllers parameters and resets the error codes.

Direct Talk Mode

Direct mode is used to directly control the motion for real time movements through serial communication. This mode is used mainly to program the parameters and for checking the movement of the motor. The 17MDSI Series has 16 commands which are easy to remember for direct movement of a step motor.

COM Port Settings

Baud Rate: 38400
Parity: None
Data Bits: 8
Stop Bits: 1
Flow Control: Xon/Xoff

Unit Selection

In order to select a unit the @ command followed by 0 (address of the unit) must be sent.
NOTE: There should be no spaces between the @ and the 0.

How to select the unit:

@0   (Unit is selected)

How to get a response from the unit:

@0$ (Carriage Return)

After the $ command, the pulse generator will return a SMSI40 + the current version number
Note: In direct talk mode each command is followed by a carriage return.

The unit communicates in half duplex mode, therefore proper setup of hyper terminal is necessary to view characters, if characters are to be echoed back to the screen.

Instructions

All instructions require that no spaces be sent between the command and the parameter followed by a carriage return. The commands are also case sensitive and are all sent as capitals.

Command Summary:

A - Acceleration/Deceleration
B - Base Speed
G - Go (Index)
H - Hard Limit
M - Max Speed
N - Index Number
R - Microstep Resolution
S - Soft Limit

T - Complete Time
V - Verify
+ - Clockwise Direction
- - Counterclockwise Direction
$ - Version Number Register
! - Error Codes Register
% - Verify Controller Address
~ - Set Controller Address

$ - Version Number Register
Format: $

Description: This command requests the 17MDSI to return the version number.

! - Error Codes Register
Format: !

Description: This command requests the 17MDSI to get current error code and print it to the screen.

+/- - Direction
Format: + or -

Description: This command sets the direction output. A "+" sets the output to clockwise, and a "-" sets the output to counterclockwise. This must be done when the indexer is not busy. This value is not saved in the EEProm.

A - Acceleration/Deceleration
Format: A#_[value] - where # is the motion profile number 1 or 2

Sample: A1_10000   Accel of profile 1 equals 10000

Description: This command sets the acceleration profile which can be an integer value between 100 and 9,999,999. These values are saved in the EEProm for stand-alone use.

Range: 100 - 9,999,999

B - Base Speed
Format: B#_[value] - where # is the motion profile number 1 or 2

Sample: B2_500   Base Speed of profile 2 equals 500

Description: This command sets the base (start) speed for motion. This value must be set before motion begins and be less then the maximum speed. The pulses will ramp down to this speed after a soft limit is triggered and run at this speed until a hard limit is triggered or the index has finished. These values are saved in the EEProm for stand-alone use.

Range: 1-5000

G - Go Index (Run)
Format: G# - where # is the speed profile number 1 or 2

Description: This command will send clocks out to the pulse generator. The only command that can stop the clocks is H (stop motion). The S (soft limit) command will make the pulses go from max speed to base speed. Motion can also be stopped by using the on-off input but this will not stop the clocks, just remove power from the motor phases. The ramp profile is specified by the B (base speed), M (max speed), and A (acceleration/deceleration) commands.

H - Hard Limit or Stop Motion

Format: H

Description: This command will stop all motion. It can only be used when pulses are running.

M - Max Speed

Format: M#_[value] - where # is the motion profile number 1 or 2

Sample: M2_10000   Max Speed of profile 2 equals 10000

Description: This command sets the maximum (running) speed for motion. This value must be set before motion begins and be equal or greater than the base speed. The motor will run at this speed until a soft limit or a hard limit is triggered. These values are saved in the EEProm for stand-alone use.

Range: 1 - 50,000

N - Index Number

Format: N#_[value] - where # is the motion profile number 1 or 2

Sample: N1_10000   Index number of profile 1 equals 10000

Description: This command sets the number of pulses to index for the motion profile. This value must be set before motion begins. These values are saved in the EEProm for stand-alone use.

Range: 0 - 8,388,607

R - Microstepping Resolution

Description: This command enables the user to select the desired resolution for the microstepping driver. Divisions for the driver are Full step (1), Half step (2), Quarter step (4), and Eighth step (8). This value is saved in the EEProm for stand-alone use.

Format: R# - Where # is 1, 2, 4, or 8

S - Stop Soft

Format: S

Description: This command will cause the indexer to ramp down to base speed and run until the index is complete or a hard limit is activated. It can only be used when pulses are running.

T - Complete Time

Format: T#_[value] - where # is the motion profile number 1 or 2

Sample: T2_100   Complete time of profile 2 equals 100 uSeconds

Description: This command sets the time for an active complete signal after the unit has finished indexing for the motion profile. The number is entered as a microsecond. This value must be set before motion begins. These values are saved in the EEProm for standalone use.

Range: 0 - 1000

V - Verify

Description: This command can be used with most commands to verify the register contents. This is a read only command. Valid commands are: A, B, D, M, N, R, T and +.

Format: V[command]
                   This format is good for R and +

    R -   If a 1 is sent back then the driver is in Full step mode. If a 2 is sent back then the driver is in Half step mode. If a 4 is sent back then the driver is in Quarter step if mode. If an 8 is sent back then the driver is in Eighth step mode.

    + -   If a 1 is sent back then the direction is clockwise. If a 0 is sent back then the direction is counterclockwise.

Sample: V+   Verification of Direction is prompted.

Format: V[command]# - Where # is the speed profile number 1 or 2
                   This format is good for A, B, M, N and T.

    A# -   Verify Acceleration/Deceleration for given speed profile.
    B# -   Verify Base Speed for given speed profile.
    M# -   Verify Max speed for given speed profile.
    N# -   Verify Index number for given speed profile.
    T# -   Verify Complete time for given speed profile.

% - Verify Address Register

Format: %   (No address is needed before this function. @% will return the address)

Description: This command request the 17MDSI Series controller to return its internal address number to the PC or PLC.

~ - Set Address Register

Format: ~[value]   (No address is needed before this function. @ ~[value] will set the address)

Description: This command sets the address for communication inside the 17MDSI Series controller.

Range: 0 - 99

Visual Basic Direct Mode Programming Examples

Example 1: This Example is for Axis=0, and Profile=1

```
DimConst DefaultTimeout As Single = 0.5
       frmMain.MSComm1.Output = "@0A1_100000" & Chr$(13)   'SetAcceleration
       Pause DefaultTimeout
       frmMain.MSComm1.Output = "@0B1_1000" & Chr$(13)      'Set Base Speed
       Pause DefaultTimeout
       frmMain.MSComm1.Output = "@0M1_4000" & Chr$(13)      'Set Maximum Speed
       Pause DefaultTimeout
       frmMain.MSComm1.Output = "@0N1_500" & Chr$(13)       'Set Index Number
       Pause DefaultTimeout
       frmMain.MSComm1.Output = "@0T1_100" & Chr$(13)       'Set Complete Time
       Pause DefaultTimeout
       frmMain.MSComm1.Output = "@0R8" & Chr$(13)           'Set Microstep Resolution
       Pause DefaultTimeout
       frmMain.MSComm1.Output = "@0+" & Chr$(13)            'Set Direction CW
       frmMain.MSComm1.Output = "@0G1" & Chr$(13)           'Start the Index
       Pause DefaultTimeout
```

Example 2: This Example receives the error code and Version Number from Axis3

```
DimConst DefaultTimeout As Single = 0.5
       frmMain.MSComm1.Output = "@3!" & Chr$(13)
       Pause ShortTimeOut
       MsgBox RecieveAscii()
       frmMain.MSComm1.Output = "@3$" & Chr$(13)
       Pause ShortTimeOut
       MsgBox RecieveAscii()

Function ReceiveAscii() As String
       'wait for the incoming data to get to the buffer
       Dim BeginTime as Single
       Dim A As Integer
       Dim B As Integer
              BeginTime = Timer
              While Main.MSComm1. InBufferCount = 0
                     DoEvents
              If Timer - BeginTime > 0.1 Then GoTo ExitRoutine1
              Wend
              A = 0: B = Main.MSComm1.InBufferCount
              While A <> B
                     A = Main.MSComm1.InBufferCount
                     Pause 0.02                               ' Fixed time value
                     B = Main.MSComm1.InBufferCount
              Wend

              ReceiveAscii = Main.MSComm1.Input
       Exit Function
```

Troubleshooting

Problem:

Can not establish communications with the indexer.

Possible Solutions:

1. Make sure the indexer has power. Is the Green LED on.
2. Check RS485 connections.
3. Check for loose cable connection either on the pulse generator or COM Port.
4. Was the software installed successfully?
5. Go to **Setup│Communication Settings** and verify COM Port settings.
6. Click on **Connect** icon to communicate with the indexer.
7. If problems still exist, contact Anaheim Automation Tech Support.

Problem:

There is no power to the indexer.

Possible Solutions:

1. Is the Indexer connected to the appropriate power supply?
2. Check for any blown fuses in line with the indexer.
3. If problems still exist, contact Anaheim Automation at 714-992-6990.

Error Codes

Error	Type	Description
1	Receive Overflow Error	The serial communications has a receiving error. This is an internal error caused by the computer.
2	Range Error	There was an invalid number of characters sent to the pulse generator. Check to see if the parameters are invalid for the command that was sent.
4	Command Error	A bad command was sent to the pulse generator. Please check to see that the command being sent is valid, or that the pulse generator is not running.
8	Transmit Error	To many parameters sent back to the PC. This is an internal error caused by the EEProm.
16	Motor Error	Motor speed profiles are set incorrectly. Please make sure that the base speed is less than the max speed and that the speeds are within their valid ranges.
32	Zero Parameters Error	There were no parameters sent to the pulse generator. A command was sent to the pulse generator that expected to see parameters after the command.

Multiple Axes Setup for 17MDSI Series

1. Power up the 1st unit **ONLY** and connect the RS485 connection to the 1st unit.
2. Click the "Define Axis" button and enter 0.
3. Click the "Select Axis" button and enter 0.
4. Under Setup menu click "Connect".
5. Text appears on top of the SMPG-SMSI Software "The Unit is connected" and the version of the firmware is displayed as well. This text should turn blue when connected.
6. Under setup menu click "Disconnect"
7. Text appears on top of the SMPG-SMSI Software "The Unit is NOT Connected". This text should turn red when disconnected.
8. POWER DOWN and Physically disconnect the 1st Unit from both power and RS485 Connections.
9. Power up the 2nd unit **ONLY** and connect the RS485 connection to the 2nd unit.
10. Click the "Define Axis" button and enter 1.
11. Click the "Select Axis" button and enter 1.
12. Under Setup menu click "Connect".
13. Text appears on top of the SMPG-SMSI Software "The Unit is Connected" and the version of the firmware is displayed as well. This text should turn blue when connected.
14. Under Setup menu click "Disconnect".
15. Text appears on top of the SMPG-SMSI Software "The Unit is NOT Connected". This text should turn red when disconnected.
16. POWER DOWN and Physically disconnect the 2nd Unit from both power and RS485 Connections.
17. For more then two units, continue steps 9 thru 16 increments the axis number for each unit.
18. Now reconnect the power and RS485 connections to **ALL** units.
19. Power up **ALL** units.
20. You should now be able to connect individually to any Axis with the RS485 converter from one Serial Port. Use the "Select Axis" button to connect to each individual axis.

ASCII Table for Direct Mode

ASCII Symbol	Hex Value	ASCII Symbol	Hex Value
Carriage Return	0D	H	48
0	30	M	4D
1	31	N	4E
2	32	R	52
3	33	S	53
4	34	T	54
5	35	V	56
6	36	!	21
7	37	$	24
8	38	%	25
9	39	+	2B
A	41	-	2D
B	42	_	5F
G	47	~	7E

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Anaheim Automation will repair or replace at its' option, any product which has been found to be defective and is within the warranty period, provided that the item is shipped freight prepaid, with previous authorization (RMA#) to Anaheim Automation's plant in Anaheim, California.

TECHNICAL SUPPORT

If you should require technical support or if you have problems using any of the equipment covered by this manual, please read the manual completely to see if it will answer the questions you have. If you need assistance beyond what this manual can provide, contact your Local Distributor where you purchased the unit, or contact the factory direct.

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